

Space News Roundup

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National Aeronautics and Space Administration



Poised against the side of the 600-year old Domtoren in the heart of Utrecht, The Netherlands, this two-dimensional full-scale replica of a Saturn V rocket is a very visible reminder of the Space '86 exhibition now underway in that Northern European city. The rocket replica will remain on the Domtoren, which happens to be the same height as a real Saturn V, until the end of August.

Commission's report signals new beginning, Fletcher says

NASA Administrator Dr. James C. Fletcher delivered these remarks on June 9, the day the Rogers Commission released its report:

After the *Challenger* accident, President Reagan told our shocked nation, "The future does not belong to the faint-hearted. It belongs to the brave. . . . The *Challenger* crew is pulling us into the future and we must continue to follow them." In words of special meaning to NASA, he said, "We must pick ourselves up again and press on despite the pain."

We have been pressing on, despite the pain, seeking answers to difficult questions, beginning carefully to make changes where they are needed. We have been at work. Yet like all Americans, we have awaited the Rogers Commission Report, hoping to learn from it as well.

The report of a Presidentially-appointed, independent body carries with it special status and the compelling obligation to study its conclusions with great care.

We are prepared to do that with an open mind and without reservations.

For over a quarter of a century, certainly since John F. Kennedy pledged in 1961 that we would be on the Moon by the end of that decade, the American people have had a special relationship with our space program. They have cheered with us and wept tears of both excitement and sadness. They have seen near perfection. They have seen absolute tragedy.

Certainly, many people were skeptical of that promise to go to the Moon. But our space pioneers — who gave their hearts and souls, as they continue to do, to the program — made that promise come true.

Who will forget the moment when we landed men on the Moon?

People in this country and around the world wept with joy as we accomplished the seemingly impossible. America never stood taller. Heads of state and common folks both cheered.

Who will forget the space walks and the experiments and the photographs of a universe we understand better for the genius and accomplishments of NASA and its associates?

Recently and unfortunately, those positive images were blurred by a horrible accident. Confidence which arose from an unprecedented string of successes was crushed with the *Challenger* tragedy. Early tears of joy were replaced with bitter tears as people wept with sadness and some anger when we suffered the loss of seven brave astronauts.

Today, the Rogers Commission has issued its report on the event which has already received widespread and deserved coverage in the media and deep and serious consideration within this agency. Its conclusions, no matter how tough, how pointed, how questioning they may be, are not unexpected and certainly not entirely undeserved.

We—and I mean all of us at NASA—will be studying the Commission's judgments and recommendations carefully and thoroughly during the days ahead. We will be offering to the President and to all Americans our specific responses in an orderly and timely way.

The report deserves that kind of thoughtful treatment. To give it less is to insult a distinguished group of citizens who are serious and concerned about what went wrong, who have spent several months dealing with difficult questions. It was a task which they

(Continued on page 2)

New badges, decals to be required

By August 12 the familiar green and red decals on civil servant's and contractor's autos must be replaced by blue or yellow decals as part of a vehicle and rebadging effort conducted by JSC Security for housekeeping purposes.

NASA employees and other authorized federal and military employees have already begun to receive new, blue vehicle decals. Contractor personnel will begin receiving yellow vehicle decals beginning July 7, and contractor

personnel not with Space Transportation System Operations Contract (STSOC) will be rebadged beginning that same date.

Patti Hunter with JSC's Security Branch said the new decals are necessary because the existing decals have been around for over four years, and many cars with valid decals still on them have been sold to non-authorized personnel. "It will help us control who has access to the facility," Hunter said.

Employees may receive up to three new decals if they bring a valid badge, old decals and vehicle descriptions and license plate numbers for their vehicles to Security. NASA employees may get new decals at locations on-site, while corporate security offices will take care of contractor needs.

Decals and new badges replacing worn badges for NASA employees have already been distributed at Buildings 1 and 15. All NASA personnel may receive new decals

at the following times and locations: June 16, Building 16; June 17-18, Building 45; June 19-20, Building 30; June 23-24, Building 4; June 25, Building 31; June 26, Building 32; June 27, Building 9; June 30, Building 419; July 1, Building 276 (Ellington Field).

As part of the program, starting July 6, NASA and contractor personnel entering the Center in non-decaled cars will be required to enter through the Second Street gate (main entrance) to be identified

and issued a temporary vehicle pass. Also, news media personnel with permanent badges may only enter through the main gate. Visiting newspeople must also enter through the main gate, telling the guard that they wish to go to the Building 2 News Center for badging. However, this procedure does not apply to visitors having temporary badges or other site vehicle passes.

Questions concerning the decal and badging program should be directed to Security at x4441.

NASA to buy replacement TDRS

NASA plans to procure a Tracking and Data Relay Satellite to replace the one lost in the *Challenger* accident, the Agency announced May 29.

Plans call for a replacement spacecraft and other efforts to keep a data relay system operational in Earth orbit through the end of the century. NASA will procure the replacement satellite and parts for an additional spacecraft from TRW, Electronics and Defense Sector, of Redondo Beach, CA.

Delivery of the satellite is scheduled for September 1991. The contract with TRW will be procured on a sole source basis, and the value of the contract will be negotiated with the company. TRW built the original series of TDRS satellites.

Later this year, NASA will initiate a follow-on study, aimed at a program that will produce advanced satellites for a replacement system to be deployed in the late 1990's.

The Tracking and Data Relay Satellite System was originally envisioned to include two operational satellites and an in-orbit spare. The one satellite of that system now in orbit, TDRS East, is in geosynchronous Earth orbit over the Atlantic Ocean, just east of Brazil, at 41 degrees West Longitude.

NOAA-G satellite launch rescheduled

The launch of the National Oceanic and Atmospheric Administration meteorological satellite (NOAA-G), scheduled for June 20, has been postponed approximately 60 days.

During pre-launch tests of the Atlas E booster, a turbopump used to flow propellant to one of the five engines indicated an unusually high rotational torque. A post test analysis of the problem led to the decision by the Air Force to replace the entire engine.

The Atlas booster will be removed from its Vandenberg Air Force Base Space Launch Complex 3 pad on south base and transported to the Vandenberg Atlas Modification Program facility in the main cantonment area where a replacement

engine will be installed.

A new launch date, not earlier than August 22, will be set by NASA following evaluation of acceptable launch opportunities.

The NOAA satellites collect meteorological readings and transmit the information directly to users around the world for local weather analysis and forecasting. Information from the satellites also is used for hurricane tracking and warnings, agriculture, commercial fishing, forestry, maritime and other industries.

Special instrumentation required to provide a search and rescue (SAR) capability will fly on the spacecraft as part of an international, life-saving program that

makes use of satellites to rescue people from downed airplanes and ships in distress.

Under the SAR system—known as COSPAS/SARSAT—a transmitter aboard a downed aircraft or ship in distress is automatically (or manually) activated on impact or immersion in water. The signal is transmitted to a satellite carrying a SAR receiver and then relayed to ground-sea-air rescue and recovery forces for action.

The SAR project, with primary participation from Canada, France, the Soviet Union and the United States, started in September 1982. Since that time, more than 500 lives have been saved because of early rescue of the survivors.

Bulletin Board

NMA plans June 25 meeting

The JSC Chapter of the National Management Association has just concluded a membership drive, but employees who are interested in joining are still free to contact the group. NMA, founded in 1925, has become the world's largest management association. The JSC chapter meets the fourth Wednesday of each month at the Gilruth Recreation Center. Meetings begin at 5 p.m. with a social hour. A dinner meeting is held at 6 p.m., and the programs feature a variety of speakers who hold management positions at JSC or in the community. The NMA also offers formal training opportunities. The membership dues include the cost of the dinner meetings and training materials for the courses offered. The next meeting of the NMA will be held at 5 p.m. Wednesday, June 25. For more information, call Lupita Armendariz, x4831.

Security stresses traffic safety

Although new stoplights at the intersections of Second Street and Avenues D and C will help improve the flow of traffic on site, the Security Branch is reminding employees the summer season brings a substantial increase in tourist-related driving at JSC. "Drivers should adhere to posted speed limits and not pass vehicles stopped at pedestrian crosswalks," said Guy Marsella of Security. "Drivers should yield to all pedestrians in a crosswalk. At the same time, pedestrians should be careful not to suddenly step off a curb or cross a street outside of designated crosswalks." Marsella said the summer season also brings with it an increased risk of theft. "We can expect a growth in the attempts to steal personal items left in vehicles, as well as attempts to steal the vehicles themselves. Employees should put valuables out of sight or in the trunk and they should keep their cars locked." The Security Branch will be glad to assist any employees concerned with protecting their property, he said. For more information, call the Security Office at x4441.

EAA offers Astros tickets

The Employees Activities Association will begin selling tickets June 30 for the July 18 game between the Houston Astros and the New York

Mets. The \$7.50 tickets include field level seats (which regularly are \$8.50) as well as a beer keg and soft drinks. A limited number of tickets are available and will be sold at the Bldg. 11 Exchange Store.

Brown Bag Seminars set

The Astronomy Brown Bag Seminar scheduled for late June and July includes a series of videotape presentations. The seminars are held each Wednesday from noon to one in Rm. 193, Bldg. 31. "Turbulence in Galactic Nebulae," featuring Dr. C. R. O'Dell of Rice University, will be the June 25 presentation. "Duelling Telescopes, 1600 to 1700," featuring Dr. Albert Van Helden of Rice, will be the July 2 offering. On July 9, a videotape on "Chemical Evolution of Galaxies" will be presented. The July 16 meeting will be an open discussion, and the July 23 meeting will be a videotape on "Quasar Spectroscopy," featuring Dr. Jon Weisheit of the Lawrence Livermore Laboratory. For more information on the programs, call Al Jackson of CSC at 280-2285.

New in the Library

The JSC Technical Library is located in Bldg. 45, Room 100, and is open from 8 a.m. to 4:30 p.m. Monday through Friday. The general information number is x4048. New books received in the library as of May 8 include:

- AI, Graphics and Simulation*, by Simulation Council.
- AIAA 11th Communication Satellite System Conference, 1986, Collection of Papers*, by AIAA.
- AIAA/NASA General Aviation Technology Conference, 1984, Collection of Papers*, by AIAA.
- Artificial Intelligence and Simulation*, by W. M. Holmes.
- Computer-Aided Processes in Instruction and Research*, by G. C. Beakley.
- Computing Techniques for Robots*, by I. Aleksander.
- Design for Tactical Avionics Maintainability*, by AGARD.
- Dictionary of Robotics*, by H. Waldman. (Reference)
- Elements of Modern Optical Design*, by D. C. O'Shea.
- Hazard Studies for Solid Propellant Rocket Motors*, by AGARD.
- Improvement of Aerodynamic Performance Through Boundary Layer Control and High Lift Systems*, by AGARD.
- Introduction to Microcomputer Engineering*, by D. A. Fraser.
- Introduction to Robot Programming in BASIC*, by P. R. Rony.
- Progress in Artificial Intelligence*, by L. Steele.
- Results of Space Experiments in Physiology and Medicine and Informal Briefings by the F-16 Medical Working Group*, by AGARD.
- Robotics and Expert Systems - 1985*, by Instrument Society of America.
- Space Stations and Space Platforms: Concepts, Design, Infrastructure, and Uses*, by AIAA.
- Space, the Next Ten Years*, by U.S. Space Foundation.
- Technique of Special Effects in Television*, by B. Wiekie.
- Teleconferencing: Linking People Together*, by K. Kelleher.
- Video Editing and Post-production: a Professional Guide*, by G. H. Anderson.

To complete its resources the Technical Library is looking for donated copies of issues of sci-tech journals. Currently there is a need for the following:

- Aerospace America*, v. 22, nos. 6, 12, June, Dec. 1984
- Aviation Week & Space Technology*, v. 124, no. 13, Apr. 1986
- Flying*, v. 112, no. 12, Dec. 1985, v. 113, nos. 1-4, Jan.-Apr. 1986
- Journal of Guidance Control and Dynamics*, (any issues)
- Science News*, v. 129, nos. 2, 3, 8, Jan., Mar. 1986

NASA
Lyndon B. Johnson Space Center

Space News Roundup

The **Roundup** is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for all space center employees. **Roundup** deadline is the first Wednesday after publication.

Editor Brian Welch

Commission's report signals new beginning, Fletcher says

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undertook as public servants whose sole purpose, I believe, was to seek the truth and to help our national space program.

They are determined, as is NASA, to ensure that this program will become as good as it ever was and as good as it ever can be. Their report, I am also sure, was not and is not intended to sound the death knell of this agency, of the space explorations that distinctively mark the ingenuity of this century and the next.

We at NASA welcome the report. It was obviously time for a serious, thoughtful, constructive review of the agency. We have been the object of America's respect for a long time. We cannot take this respect for granted in today's environment. Like an old marriage, this relationship between the American people and their space program requires honesty and periodic review. That can only lead to a better understanding and a refreshing of that loyalty.

Every administration from President Eisenhower through President Reagan has been generous and supportive. The Congress has been interested and involved. We have

responded, giving this country much to be proud of, much to stir the simple and intense pride of being an American, as we worked openly through good times and bad.

I have accepted the President's call to make this agency as vibrant and careful as it can be, to help it earn the respect it deserves and the excellence that has been its hallmark.

We will achieve those goals in a more restrictive atmosphere than we have been accustomed to. Like other departments and agencies of government, we work under the severe budget limitations and restrictions of our time. And that is proper. Unlike other agencies, our failures are immediately visible, our failures endanger lives and property, our latitude for error extremely narrow. But we cannot and will not sacrifice safety concerns to budget limitations.

We are going to behave like a family which has suffered a tragic event. We are going to deal responsibly with our loss, without needless recrimination, and we are going to move forward, facing and conquering the challenges that face us.

Where management is weak, we

will strengthen it. Where engineering or design or process need improving, we will improve them. Where our internal communications are poor, we will see that they get better.

This is an agency whose excellence and commitment to new frontiers drew to it seven exceptional Americans. Our response must be to overcome our errors, not to quit, to stop, or to cave in. To stumble now in hesitation is to mock their commitment to reaching for distant horizons, and their willingness to take a chance in seeking knowledge and understanding.

Let me conclude by repeating my thanks to the Rogers Commission, for undertaking a tough job and working commendably through long weeks toward their conclusions. Their work, I give you my sacred pledge, will not have been in vain. And I think I speak for all NASA employees when I say that. We are, in a very special way, an agency with a mission, determined now to regain our honor in its fullness. This is a day of tension for us, but it is also a day of resolve, a time of beginning, and a time of rededication.

Forests affect global air quality

Analysis of a major atmospheric study indicates that natural emissions of gases from the rain forests in the Amazon Basin in Brazil set off a chain of chemical reactions that eventually impact global air quality and the Earth's radiation budget.

The study is more than an interesting analytical exercise. Scientists already know that tropical rain forests provide something like 40 percent of Earth's oxygen supply. But a recent United Nations report estimates that "at the present rate of forest destruction, all accessible tropical forests will have disappeared by the end of the Century."

The Global Tropospheric Experiment/Amazon Boundary Layer Experiment (GTE/ABLE) was a joint U.S./Brazilian expedition conducted by NASA and the Instituto de Pesquisas Espaciais (INPE) in July and August 1985.

Ground-based and airborne measurements within and above the Amazon region were augmented by data from Landsat and Geostationary Orbiting Environmental Satellite (GOES) to study the influence of the world's largest tropical rain forest on the troposphere.

Data collected from the extensive measurements confirm a major influence on the chemical composition of the overlying atmosphere by the tropical forests. The extensive

biological activity in the forest soils and vegetation emits gases and aerosols into the lower atmosphere as air transects the Amazon Basin with a flow from the Atlantic Ocean in the east to the Andes Mountains in the west.

Then, large convective thunderstorms over the Amazon, typical of tropical regions, remove the sea salts from the air and mix the forest gases and aerosols into the atmospheric boundary layer, from which they are carried aloft to altitudes of greater than 4 miles and become integrated into the global atmospheric circulation.

Measurements of carbon monoxide (CO) and other gases, emitted from ground sites and measured by sensors, indicated that the world tropical forest ecosystems play a particular role as the source of important atmospheric gases.

The forest vegetation produces large quantities of organic vapors and aerosols which leads to a "natural" acidic rain over this region.

In contrast to North America and Europe, measurements indicate that human activities in Manaus, the largest city in the central Amazon, reduce the acidity of local rainfall.

Composition of the aerosols over the tropical forest are different from aerosols over North America and Europe. Over the Amazon basin over 80 percent of the aerosols

result from natural organic carbon.

A NASA Electra aircraft was used to make in situ and remote measurements of atmospheric trace gases and aerosols during flights over the Amazon basin. Measurements were taken during approximately 75 flight hours, encompassing a variety of flight patterns to study the exchange of gases between the forest canopy and the troposphere under different meteorological conditions. The aircraft measurements were complemented by surface and tethered balloon measurements and by measurements from lakes and rivers.

Program manager for GTE/ABLE was Dr. Robert J. McNeal, NASA Headquarters. The project was managed by James M. Hoell, Jr., of the NASA Langley Research Center, and Robert C. Harriss, also of Langley, was project scientist. The Brazilian coordinator for INPE was Luiz C. B. Molion. The coordinator for INPE's facility was Adauto G. Motta.

Detailed results of the findings were presented at the spring meeting of the American Geophysical Union in Baltimore, May 20.

Twenty-seven papers were presented during the day-long special session. The session described results obtained during the GTE/ABLE mission by more than 80 scientists from NASA, INPE and American and Brazilian Universities.

Newly discovered asteroids could provide for future space mining

Studies of the makeup of two newly discovered asteroids that could possibly provide the basis for future mining in space have been announced by astronomers and colleagues at NASA's Jet Propulsion Laboratory.

In work at several observatories, the astronomers have established that two near-Earth asteroids are probably composed chiefly of nickel-iron metal, much like some asteroids in the main asteroid belt and meteorites that impact Earth.

Astronomers previously suspected that such near-Earth asteroids were extinct comets. As such, they would have probably originated in the far outer solar system where comets are believed to have formed.

Nickel-iron asteroids, on the other hand, would have probably formed

in the inner solar system. Most would have originated along with objects in the main asteroid belt orbiting the Sun between Mars and Jupiter. Metallic near-Earth asteroids, however, may have begun as part of the cloud of material that condensed and became Earth.

One of the two asteroids studied, designated 1986 EB when it was discovered earlier this year, is known as an Aten-class asteroid—one whose orbit is inside Earth's. The other, designated 1986 DA, belongs to the Amor class—asteroids whose orbits are close to Earth's, but which are beyond Earth's orbit and do not cross it. Both are about one mile in diameter.

The observations were made by planetary astronomers Dr. Edward Tedesco of JPL and Dr. Jonathan Gradie of the University of Hawaii.

Using the 120-inch NASA Infrared Telescope at Hawaii's Mauna Kea Observatory, they found that the two asteroids have spectral qualities and albedo that put them in the same class as metallic asteroids of the main asteroid belt (albedo refers to an object's reflectivity). Astronomers study the light, or spectra, of an object to determine its chemical composition.

Tedesco made later observations at Arizona's Kitt Peak National Observatory with Dr. Robert Nelson of JPL and at Mauna Kea with Dr. Marc Buie of the University of Hawaii.

The astronomers noted that metallic asteroids near Earth might provide suitable sites for future mining operations in space, as has been proposed to provide raw materials for possible interplanetary expeditions in the 21st century.



Deanna S. Pierce



Donna Gibbs



Rose Mary Cox



Rebecca K. Derbonne



Nancy K. Hutchins



Joan McKinney

Secretaries in a wide variety of working environments have been honored in the past few months as recipients of the Marilyn Bocking Secretarial Excellence Award. The honorees are **Deanna S. Pierce, Donna Gibbs, Rose Mary Cox, Rebecca K. Derbonne, Nancy K. Hutchins** and **Joan C. McKinney**. The award used to be known as the Outstanding Secretary Award.

Pierce, honored for the month of November 1985, serves as secretary to **Eric McHenry**, Chief of the Spacecraft Software Division and has held that post since August 1984. "She exhibits a high degree of initiative, professionalism and competence and provides outstanding support to the Division,"

McHenry said. "Her professional skills and attention to detail have made significant contributions to the smooth running operation of the Division during a period of extensive reorganization and a change in Division management."

Gibbs, honored for the month of December 1985, serves as secretary to **Leonard Nicholson**, Manager of the Mission Integration Office. "Her professional attitude is evident in her dealings with our Space Shuttle customers, and I have received numerous comments on her capabilities," Nicholson said. "The interfaces with the customer must be with our best professional and personal manner, and she is an excellent example of the best first contact

with these visitors and callers."

Cox, the January honoree, is secretary to **Charles R. Mains**, Chief of the User Support Branch, Data Processing Systems Division. "A major activity of the branch is the logistical work associated with running a 'computer store,'" Mains said. "In the course of a day, she answers many questions and assists callers by referring technical matters to the appropriate persons. She has consistently demonstrated exceptional ability as a secretary and she is a valuable member making a significant contribution to our branch, division and directorate."

Derbonne, the February honoree, is secretary to **Arnold Aldrich**, Manager of the National Space

Transportation System Office. "As lead secretary to three organizations performing at the directorate level, she has implemented a congenial and highly effective working team of the secretarial and clerical support," Aldrich said. "She is an experienced, highly professional secretary and projects her pleasing personality in her daily duties."

Hutchins, the honoree for March, is secretary to **R. E. Thompson**, Chief of the Facilities Design Division. "Mrs. Hutchins uses her excellent knowledge and skills to maintain very effective office operations and to assure the highest quality for the large amount of formal correspondence prepared within the division," Thompson said.

"Across the very full measure of division responsibilities plus other sizeable tasks, she performs as a most competent, dedicated and professional secretary."

McKinney, the honoree for April, serves as secretary to **Allen J. Louviere**, Manager of the Systems Engineering and Integration Office, Space Station Program. "Mrs. McKinney has quietly, professionally and effectively organized the secretarial support system of the entire office, oriented and trained new secretarial personnel, maintained extraordinary levels of work output and has provided the office with a benchmark of calm organization during an intense period," Louviere said.

This year's winners of the NASA Exchange-JSC Scholarship are **Laurinda Robinson** and **Richard Snyder**. They were selected from 41 applicants and are eligible for up to \$1,000 per year for study at any college or university. Robinson is the daughter of **Clifford Robinson**, Advanced Development Systems, Space Station Program Office. She is a May 1985 graduate of Dobie High School and is currently a freshman at Trinity University where she is majoring in drama and business. She was ranked 11th out of 464 students in her high school graduating class and has a 3.2 GPA thus far at Trinity. Snyder is the son of **Richard Snyder**, Head of the Orbit Procedures and Flight

Data File Section, Operations Division. He is a May 1986 graduate of Friendswood High School, where he was ranked 4th out of a class of 276. Snyder has won numerous scholastic honors and plans to enroll at Texas A&M and study aerospace engineering. The two students are the 47th and 48th dependents of JSC employees to receive scholarships since the program began in 1967.

Scholarships have also been awarded by the NASA College Scholarship Fund, Inc., which is administered at JSC. The Fund was established in 1982 by a substantial gift from author **James A. Michener**. This year's winners were

People

Peter Shawhan, son of a NASA Headquarters employee, and **Rebecca Miller**, daughter of an Ames Research Center employee. Some 125 applications were received for the 1986 scholarship, including 8 from JSC. Applicants for the scholarship are limited to dependents of NASA employees who plan to major in science or engineering fields.

JSC observed Small Business Week in May and honored its small business buyers of the year for FY 1985. **Geraldine Mason** was honored as the JSC buyer whose cooperative efforts resulted in the largest number of new awards to small business by a single buyer. **Frances Davidson** was honored for having the largest dollar volume of new awards to small business during FY 1985. Both Mason and Davidson are with the Base Operations Procurement Office. Each year during Small Business Week, the U.S. Small Business Administration honors outstanding firms from around the country. This year, Webb, Murray Associates, a JSC prime contractor, was given the SBA Administrator's Award of Excellence during ceremonies in Washington.

The new Deputy Director for Center Operations is **Grady McCright**, who since 1984 has been Chief of the Plant Engineering Division. McCright joined NASA in 1966 at the White Sands Test Facility. He earned a B.S. in physics in 1966 and just completed an executive development program at Harvard University.

Besides the Rockets, another Houstonian recently back from Boston is **Dr. Sam L. Pool**, Chief of the Medical Sciences Division, who graduated from the 51st Program for Management Development at the Harvard University Graduate School of Business Administration. Experienced middle-level managers are selected twice a year to participate in the program. Successful applicants are sponsored by their organizations in recognition of their potential for increased responsibilities. Pool's class included 125 men and women from 30 countries, representing 109 organizations.

Of the 2,100 graduate and undergraduate students at the University of Houston this spring, **Gary Kitmacher**, Crew Equipment Branch, was one of only 67 to be selected



Small Business honorees **Frances Davidson** and **Geraldine Mason** are congratulated by, at left, JSC Procurement Director **James L. Neal** and, at right, **Bob Dupstadt**, Small and Disadvantaged Business Specialist.

for membership in Sigma Iota Epsilon. The national honorary and professional fraternity is an official representative body of the Academy of Management. Kitmacher qualified for membership based on his high grade point average in the management program and his excellence in academic studies.

Col. Sherwood C. "Woody" Spring, Astronaut Office, was awarded an honorary doctorate May 1 from Bryant College in Smithfield, Rhode Island. Spring received a Doctor of Science degree at a noon ceremony at the college. Spring considers the village of Harmony, not far from Bryant, as his home, although he was born in Hartford and lives in Houston with his wife Collette and two children, Sarah and Justin. Spring flew in space aboard the *Atlantis* in November 1985 on STS 61-B.

Deputy Director **Robert C. Goetz** presented 1985 safety awards to representatives of Flight Crew Operations and the Mission Support Directorate April 29. The awards serve to recognize outstanding performance in accident prevention

among the directorates and program offices. Selection is made by grouping organizations according to high and low hazard tasks, according to **Martin L. Raines**, Director of Safety, Reliability and Quality Assurance. Criteria include lost workdays among civil service and contractor employees, Type A mishaps, OSHA recordable incidents and internal safety activities. For 1985, Flight Crew Operations represented the high hazard group, and Mission Support represented the low hazard group. The award is a distinctive NASA blue, lucite pyramid with a miniature Shuttle model encased within.

A man of words, of song and of engineering. That's **Jerry Elliot** of the Systems Engineering Office, Space Station Projects Office. Elliot, who has been critically recognized for his poetry, recently had his music featured on KQUE-FM. Elliot, who plays electric guitar, cut a record recently which features Big Band standards, Duke Ellington music and the like. He did his own recording and had the tapes packaged in Houston. "I just did it for the fun of it," he said.



Pictured at the 1985 Safety Award ceremony are, left to right, **Cdr. Manley L. Carter, USN**, representing Flight Crew Operations Director **George W. S. Abbey**; **Karla G. Deney**, Administrative Officer and Safety Representative for Space Operations; **Lt. Cdr. James D. Wetherbee, USN**, also representing Abbey; **Clifford E. Charlesworth**, Director of Space Operations; Deputy Director **Robert C. Goetz**; **Donald J. White**, Manager of Communications Services and Safety Representative for Mission Support; and **Ronald J. Berry**, Acting Director of Mission Support.

What do you think of T-585?



Jerry Garegnani
Flight Activities Branch

"It's a real nice work environment. The carpeting helps keep the noise down, it's clean and it's close to the parking lot. I do feel a little isolated from the things going on in Bldg. 4, where there was always news on the bulletin boards, but otherwise it's nice."



Tracy Calhoun
Flight Activities Branch

"It's a really pleasant place to be and work. Because of the way it's built, it sounds kind of hollow when you walk down the halls, but that's to be expected. Overall, it makes you feel good to walk in in the morning and not be confronted with battleship gray."



Diane Hord
Flight Activities Branch

"We moved in about 5 months ago as soon as the building was completed. It's a lot different than Bldg. 4. The furniture is a lot nicer, it has carpet and it seems a lot cleaner. The people who had windows in Bldg. 4 are a little disappointed because the windows over here are a lot smaller, but at least we do have windows in almost every office."



Liz Brown
Reconfiguration Requirements Branch

"This building is a lot different than the basic gray and tile floors of other buildings. I have a lot more space than in Bldg. 29, but I don't have a window seat—I had to ask somebody to keep their door open so I could see out a window. So I'm not real fond of the slit windows, no."

Roundup Swap Shop

All Swap Shop ads must be submitted on a JSC Form 1452. The forms may be obtained from the Forms Office. Deadline for submitting ads is 5 p.m. the first Wednesday after the date of publication. Send ads to Roundup, AP3, or deliver them to the Newsroom, Bldg. 2 Annex, Room 147. No phone in ads will be taken.

Property & Rentals

Sale: League City 5-3-2, 3,000+ sq. ft., both formals, den, study, gameroom, large pantry, fenced, above-grd. pool, deck, no equity, assumable VA, \$98,000. Joyce, 282-3314 or 332-1774.

Sale: League City 3-1.5-2, new carpet, miniblinds, completely redone, near school and shopping, low equity. 488-7766.

Sale/rent: 3-1-1 home, completely redone. 554-2317.

Sale: Friendswood 3-1.5-1, FPL, cathedral ceiling, fenced, near schools, trees, \$45,000, assumable 9.5% VA. 482-7546.

Sale: Alvin Hts. cstm. 3-2-2, formals, den, fans, 1 acre, part fenced, large trees (3 pecan), quiet country area, \$96,000. 331-8635.

Lease: Eldorado Trace 2-2.5-2 townhouse, 2-story, 2-zone AC, W/D, FPL, 3 fans, covered pking., jacuzzi, pools, avail. 7-1, \$465/mo. Hank, x4623 or 488-3178.

Sale: '82 Champion mobile home, 14' x 80', 3-2, fan, garden tub, miniblinds, appliances, assumable VA. Sharyl, x5224 or 1-595-2230.

Lease: Heritage Park 3-2-2, all elec., 1,450 sq. ft., fenced, fans, on cul-de-sac, near park and pool, \$550/mo. Avail. 7-23. Mike, 280-1714 or 554-4172.

Sale: University Green 3-2-2 townhouse, well decorated, FPL, Fans, covered patio & deck. \$82,900, \$200 down and \$700/mo. 480-2949.

Sale: 1 BR home in Indian Springs, 12 min. to Lake Livingston, carport, FPL, on large 152' x 111' lot, \$15,000 neg. 332-5037.

Sale: 3-2-2 home, fans, garage door opener, nearly new, \$63,000. 996-9628.

Sale: Pipers Meadow 3-2-2, by owner, FPL, wet bar, garage opener, large den, fenced, \$75,000. Sam Jo, x5831 or 488-9742.

Sale: Friendswood/Forest Bend townhouse, 3-2.5, LR, den, lots of storage, park, pool, \$49,500. 333-2322.

Sale: Two residential lots in Green Acres off NASA 1, each 114' x 185', \$12,000. 324-4946.

Sale/lease: Forest Bend 4-2-2, FPL, fenced, gameroom & pool table, hi-effic. AC, \$57,500. Glenn, x6541 or 486-0462.

Lease: Eldorado Trace 2-2.5-2 townhouse, covered parking, poolside, 2-story, 2-zone AC, W/D, FPL, 3 fans, jacuzzi, pools, etc., avail. 7-1, \$465/mo. Hank, x4623 or 488-3178.

Sale: Heritage Park 3-2-2, near school/recreation, fan, new paint, reduced, \$67,500. 280-1611.

Sale: The Villages, Lake Palestine timeshare, RCI exchange, below market, horse riding, marina, fishing, etc. Fred Nau, x4726 or 333-2582.

Sale: Toledo Bend, lakefront, modified A-frame, 2 BR, loft, LR, beautiful lot, \$45,000. M. Lillpop, 864-8679.

Sale: Toledo Bend, lakefront, modern rustic, 2-story, central heat/AC, 3-2, FPL, surrounding deck, very nice, \$69,900. M. Lillpop, 864-8679.

Sale/Rent: Baybrook 2-2 condo, roomy, affordable, for modest amount owed or by monthly rates. Marty, 486-0819.

Rent: Bedroom in Forest Bend/Friendswood house, includes kitchen and laundry use, plus utilities, non smoker pls., avail. July 19, \$50 deposit, \$250/mo. 482-6492.

Lease: CLC 1 BR condo, W/D, covered parking, FPL, alarm, tennis, sauna, etc. Jim, x2546 or 488-7901.

Lease: Egret Bay 1 BR condo, W/D, FPL, fan, micro, covered parking, 2 storage closets, balcony, \$350/mo. Chuck, x2676 or 333-2225.

Sale/lease: Austin/UT condo, 1-1, near stadium, by pool, assume loan, no equity. B. Craig, x4031 or 420-2936.

Cars & Trucks

'83 Toyota Corolla 2-dr., white, PS, auto, overdrive, AC, stereo, clean, well maintained, \$5,400. Briggs, x5165.

'77 El Camino SS, black on black, ex. cond., \$2,500 OBO. Kirk, 649-4948.

'76 Jaguar XJ12L, sunroof, new tires, ex. cond., clean, \$6,000 OBO. Laurie, x4776 or 554-6892.

'76 Buick Electra, 4 dr., needs wk.; '79 LeSabre; '80 Electra, 2 dr., good cond. Joanne Fink, 333-4494.

'71 Triumph TR6, fair body, partly rebuilt engine out of car, wire wheels, \$1,000. Max, x5425 or 488-4135.

'81 Dodge Aries, good cond., runs good, \$2,000. Max, x5425 or 488-4135.

'73 Ford Gran Torino, PS, AT, AC, runs, needs work, \$300. Alex, x6373 or 538-2299.

'80 Pontiac Bonneville, 4 dr., V-6, blue, 70K mi., clean, \$3,700. Rick, x5341 or 480-3017.

'83 Ford Bronco XLT, loaded, 351 V-8, 4 bbl., auto, AM/FM/cassette, PS, PB, PW, PL, foglights, cruise, tilt, gas shocks, must sell, \$7,200. Miller, x2115 or 334-3299.

'79 Volvo, completely rebuilt motor, runs great, ex. cond., loaded, sunroof, \$3,750. Verna, x2471 or 522-9279.

'84 Z28, 5.0 HO, white/blue, fully loaded, warranty, alarm, T-tops, new tires, low miles, \$10,500 OBO. Ann, 333-6616.

'81 Olds Delta 88, AT, AC, PS, AM/FM, 4 dr., \$2,995. Richard, x6467 or 946-2523.

'77 Corvette, black, T-tops, clean, good cond., \$7,500. Michelle, x5516.

'85 Mitsubishi Colt-Vista wagon, 4 dr., AC, 16,600 mi., fuel injection, front wheel drive, \$10,000 firm. Sam, x2958 or 326-1615.

'59 DeSoto, runs, needs work, begging for restoration. Paul, x5998 or 486-5300.

'71 Jaguar XKE coupe, 4.2 L, French racing blue, AC, new paint/interior/tires, 5,000 mi. on rebuilt engine, \$12,500. Frank, 282-3858.

'83 Camaro, brown, 4 cyl. std., new tires/clutch/starter/battery, recent \$700 tune up, ex. cond., \$5,000. Brant, 480-1225.

'71 Volkswagen bus, good condition, \$1,300. 944-8717.

'68 Chevy Impala 327 4bbl., PS, PB, AC, auto, engine needs work; '69 Chevy Biscayne, 327 4bbl.; 3 spd. manual, Michelin X radials, air shocks, AM/FM/cassette, good engine, \$500 for both. Paul, x3801 or 538-1281.

'79 Toyota station wagon, AC, 5 spd., FM, orig. owner, no rust, 24+ MPG, \$1,995. Tex Ward, 488-5445.

'67 Mustang, auto transmission, needs new engine, \$750 OBO. Mary, x5473 or 486-4229.

'84 Ford van, 302 O.D., LWB, aux. tank, AC, extra clean, 30K mi., \$5,900. McClain, x4081 or 532-1222.

'81 K car, great condition, great MPG, \$2,595 OBO. 334-3896.

'65 Buick, as is, \$350. Donzelle, x3336 or 280-0134.

'78 Camaro, 350 V8, auto, PS, PB, AM/FM stereo, \$2,000. 480-4757 or 333-0939.

'79 Olds Cutlass Cruiser wagon, V-8, good cond., 59K mi., AM/FM/cassette, new tires/brakes, \$2,900. Manisha, x6414 or 280-9822.

'67 Mustang, 3 spd., 6 cyl., AM/FM/cassette, new alt./water pump, clean interior, good eng., current plates, recent brake job, \$2,600. 333-9565 or 538-4327.

'79 Ford pickup, AC, PS, 3 spd., good work truck, \$1,650 OBO. Cindy, x4031.

Boats & Planes

'84 Wellcraft, 18', center console fisherman, 12 HP Johnson V-4, BIMI, bail well, etc. \$9,600. Bernhard, x2251 or 333-2968.

19 ft. V-hull Bay boat, 120 I/O OMC, \$1,500. Darby, 337-1129.

18 ft. AMF Trac catamaran, trailer and extras, like new, \$3,890. 333-3056.

RVs

Winnabego class A motor home, generator, roof AC, self contained, very good cond., 65K mi., \$5,450. 488-8105.

Bethany pop-up camper, sleeps 6, all accessories, good cond., \$1,500 or will trade for small boat. Stephanie, 480-1225 or 485-2265.

Cycles

'80 Kawasaki 650, rifle fairing, luggage rack, good cond., \$750. Wendel, x4266 or 332-2318.

'80 Suzuki GS850L, ex. cond., 13K mi., \$1,500 OBO. Russell, 554-2749.

'73 Honda CL 350 twin, rebuilt engine great for parts, \$50; Bell Star II helmet, \$25. Paul, x3801 or 538-1281.

Motocross bike, diamondback, custom built, cost \$320, sell for \$150. Craig, 997-1358.

'80 Yamaha 650 Special II, under 13K mi., needs bunker, must sell, best offer over \$500. Richard, x3458 or 480-9150.

20" Huff racing bike, like new, was over \$150, sell for \$75 OBO. Manisha, x6414 or 280-9822.

Audiovisual & Computers

Apple 80-col. extended memory card for Apple IIe computer, \$80. Handley, x3725.

RCA 19" portable color TV, \$95. Tim, 3268 or 280-9774.

Panasonic PK-802 video camera, loaded: elec. title, stopwatch, auto iris, auto white balance, 6:1 zoom lens, cost \$1,100, sell for \$500. G. R. Sabionski, x4751 or 470-1835.

Dokorder model 1120 reel-to-reel tape deck, 10.5", 4 trk., 2 ch., 3 motors &

heads, used approx. 100 hours, \$250. 334-1934.

80 column card and manual for Apple IIe. \$25. 334-1934.

EICO 390 function/sweep gen., \$40; Leader LSG-231 FM stereo gen., \$95; Leader LSW 333, VHF/UHF/FM sweep maker gen., \$150. Tom Clark, x7445.

Atari 130 XE CPU w/13" Technica color monitor, 1050 disc drive, Atari writer word proc., DOS, other S/W and 9 games, parallel printer interface, joy sticks, \$700. Tom, 996-6064.

Compaq 512k, 2 floppies, 1 serial, 2 parallel, game port, clock/calendar, \$1,500 OBO. John, x3268.

Bogen black and white enlarger, with trays, easel and accessories, \$150. John, x3268.

Atari 1200XL home computer, new, unused, in orig. packing, \$200; Atari 825 80 col. printer, new, \$80. Franklin, 280-3580 or 480-9652.

TRS 80 16K computer with Level II Basic, \$60. 488-4069.

Brother HR-15 daisy wheel printer, letter quality, \$350. 486-5454.

TRS 80 32K color computer, cassette player, joysticks, best offer over \$200. Rich, x3458 or 480-9105.

Household

Bamboo dining table, 4 chairs, \$150; bamboo sofa, 2 chairs, \$200; 4-chair dinette, \$50; twin box springs, \$25; 2 passenger seats for Dodge van. Mike, 280-1714 or 554-4172.

Double bed mattress and box spring, ex. cond. Beth, x2076 or 554-2908.

Tomlinson tailored chestnut sofa; lamp; Drexel pecan coffee tables; Hickory celery arm chair, all in ex. cond. Conie, x5565 or 333-2271.

Full-size mattress and box spring, good cond. John, 997-2079, lve. mssge. Brown plaid couch and loveseat, \$100. Wendel, x4266 or 332-2318.

King size bed with headboard, frame and mattress/boxspring, \$150; ceiling fan, \$10; end table, \$5; lamps, \$10 ea.; GE 12" B&W TV, \$35; Hoover vacuum, \$20. Patel, 333-6449 or 996-9628.

Couch, good frame, needs to be recovered, \$25. Beth, x5066.

Two twin beds, mattress, frame and box springs, in good cond., \$20 each. Karmin, x6557 or 486-5628.

Stearns and Foster king size bed, box springs, frame, \$69 OBO. 482-5681.

L-shaped beige sectional, ex. cond., \$375 OBO. Donzelle, x3336 or 280-0134.

Frigidaire frost free refrigerator, harvest gold, \$150. B. Craig, x4031 or 420-2936.

Fiestaware dishes; Sears upright frostless freezer, 15.3 cu. ft., \$250; Lenox Montclair dinner plates, \$15 ea., matching crystal, \$10 stem; aquariums, stands, etc. Suzette, x5018 or 554-7371.

Wanted

Want fourth, non-smoking carpool member, Edgebrook area to JSC, 7:30 a.m. to 4 p.m. shift. Charles Gardner, x4721.

Want window AC, must work well and be reasonably priced. Biggs, x4241 or 487-2978.

Want roommate to share furnished 2-2 condo, \$225/mo. + \$50 deposit. Rick, x5341 or 480-3017.

Pets

Free kittens, born May 23, ready early July. Joyce, 282-3314 or 332-1774.

Blue fronted amazon parrot, 18 mo. old, prime to train, with cage and accessories, \$450. Franklin, 280-3580 or 480-9652.

Musical Instruments

Saxophone and case. Mary, x5473 or 486-4229.

Honda guitar, Pevy studio 40 amp, extras, like new, \$250. Craig, 997-1358.

Ibanez Roadstar guitar w/case, like new, \$350. Elray, 480-1225.

Baldwin Overture organ, with bench and all manuals, \$1,750. Tom Clark, x7445.

Miscellaneous

Ladies size 7 white roller skates, ex. cond. Beth, x2076 or 554-2908.

Texas Sesquicentennial cookbook, benefits Bay Area Museum, \$8.50 includes tax, postage & handling. De Sission, 474-3906 after 6 p.m.

MF 50 tractors, 6 ft. tandem disc, 7 ft. planter, 2 bottom blow, 5 ft. box blade, 2 wheel trailer, \$5,250 for all. 488-8105.

Misc. fishing gear, for salt and fresh water; 4.5 ft. cast net, new, \$20. Tom, (409) 925-6355.

Chrysler 9.9 HP outboard, remote control, gas tank, needs some work, \$150. Musgrove, x3566 or 488-3966.

Four chrome wheels, 7 x 15, with tires, fit Dodge or Chrysler cars, fair cond., \$75 for all. 488-5580.

Sears rear bag lawnmower, self propelled, \$60. 486-0462.

Four 14" steel chrome wheels, good 205 x 14 tires, nuts and locks, set for \$120. Frank, 282-3858.

Electric train tracks and cars on 4 x 8 plywood, two engines need work, suspends from garage ceiling, \$30 OBO. T. Ward, 488-5445.

Wedding dress, veil, slip, all tiered lace, size 11, never worn, was \$850, asking \$350; 4 bridesmaids dresses, Organza material, mauve, never worn, were \$105, asking \$75. 488-5369 or 334-4088.

Walther PPK/S, .380, 9mm short, auto, like new, \$285. 996-1691.

Marlin 336CS, 30-30 cal., 4X Bushnell w/sight thru scope rings, lens caps, latigo quirk strap, shot 40 rounds, \$325. Ed, 486-5218.

Exercycle w/speedometer, timer, rowing action, brand new, \$100. Karen, x5341 or 944-1390.

Metal woods, like new, #1, 3 and 5 plus #4 wood, \$50. 554-4320.

Cannon 35mm camera body, no lens, needs repair, \$50; Kodak movie deck 435 regular 8 or super 8 movie projector and Sears super 8 easy load camera, \$150. Steve, x6128.

Chrome bumper for '76 Dodge pickup, \$25. Suzette, x5018 or 554-7371.

Gilruth Center News

Call x3594 for more information

Ladies weight training — This popular course begins July 14 and runs for 4 weeks. The class meets Mondays and Wednesdays from 7 to 8 p.m. The cost is \$20 per person.

Defensive driving — Learn to drive safely and qualify for a 10% reduction in your auto insurance for the next three years. This all day Saturday class meets from 8 a.m. to 5 p.m. July 19. Space is limited.

Jazzercise — Designed to develop total fitness, this four-week class meets Mondays and Wednesdays from 4:30 to 5:20 p.m. beginning July 7. The cost is \$25 per person.

Tennis lessons — Beginning tennis classes will be offered starting June 16. The class, which runs for 8 weeks, will meet from 5:15 to 6:45 p.m. Tuesdays. The cost is \$30 per person.

Horseshoe tourney — The deadline for men's and women's singles entries in a horseshoe tournament is July 10. The entry fee is \$2 per person. Contact the Rec Center for details.

Guitar — Learn simple songs, chords and strums in this class which meets Wednesdays for 6 weeks beginning July 9. The class meets from 7 to 8 p.m. and the cost is \$25 per person.

Banjo — Learn to play a 5-string banjo in this class which runs for six weeks beginning July 9. The sessions are from 8 to 9 p.m. and the cost is \$25 per person.

Exercise class — This seven week class meets from 5:30 to 6:30 p.m. Wednesdays beginning June 16. The cost is \$21 per person.

New phone number — Softball game times, information on rain makeup games, and a listing of Rec Center classes are all available by calling the new code-a-phone at the Rec Center. The number is x3944.

Tennis leagues — Registration for summer tennis leagues begins June 25 and concludes July 3. League play begins July 7. The cost is \$10 per person, and each player must furnish a can of tennis balls. The A League for men and women plays on Tuesdays, the B League plays on Wednesdays, and the C League plays on Thursdays.

Cookin' in the Cafeteria

Week of June 16 — 20, 1986

Monday — Cream of Celery Soup; Braised Beef Ribs, Chicken a la King, Enchiladas w/Chili, Italian Cutlet (Special); Navy Beans, Brussels Sprouts, Whipped Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday — Beef & Barley Soup; Turkey & Dressing, Country Style Steak, Stuffed Cabbage (Special); Corn Cobbette, Okra & Tomatoes, French Beans.

Wednesday — Seafood Gumbo; Catfish w/Hush Puppies, Roast Pork w/Dressing, Pepper Steak (Special); Broccoli, Macaroni & Cheese, Stewed Tomatoes.

Thursday — Cream of Tomato Soup; Beef Tacos, BBQ Ham Slice, Hungarian Goulash, Chicken Fried Steak (Special); Spinach, Pinto Beans, Beets.

Friday — Seafood Gumbo; Liver & Onions, Deviled Crabs, Roast Beef w/Dressing, Tuna & Noodle Casserole (Special); Whipped Potatoes, Peas, Cauliflower.

Week of June 23 — 27, 1986

Monday — French Onion Soup; Beef Chop Suey, Polish Sausage w/German Potato Salad, Breaded Veal Cutlet (Special); Okra & Tomatoes, Green Peas. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday — Split Pea Soup; Salisbury Steak, Shrimp Creole, Fried Chicken (Special); Mixed Vegetables, Beets, Whipped Potatoes.

Wednesday — Seafood Gumbo; Fried Catfish w/Hush Puppies, Braised Beef Rib, BBQ Plate, Wieners & Beans, Shrimp Salad, Stuffed Bell Pepper (Special); Corn O'Brian, Rice, Italian Green Beans.

Thursday — Chicken Noodle Soup; Beef Stroganoff, Turkey & Dressing, BBQ Smoked Link (Special); Lima Beans, Buttered Squash, Spanish Rice.

Friday — Seafood Gumbo; Broiled Turbot, Liver & Onions, Fried Shrimp, Meat Sauce & Spaghetti (Special) Green Beans, Buttered Broccoli, Whipped Potatoes.

Week of June 30 — July 4, 1986

Monday — Beef & Barley Soup; Beef Chop Suey, Breaded Veal Cutlet w/Cream Gravy, Grilled Ham Steak, Wieners w/Baked Beans (Special); Buttered Rice, Brussels Sprouts, Whipped Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.